

A BROADWOOD SQUARE PIANOFORTE IN THE AUCKLAND INSTITUTE AND MUSEUM

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Abstract. The constructional details and action mechanism of a nineteenth-century square pianoforte from the Museum collection are described, and the date of manufacture estimated. Brief reference is made to the New Zealand historic background.

The dismantling for restoration of a pianoforte from the Auckland Institute and Museum collection has provided an opportunity to inspect and report on the internal action mechanism. The instrument, by John Broadwood and Sons, is of the square variety, similar to that previously documented by the writer (Annabell 1983). As in that survey, constructional details are summarised here (see Table 1), with special attention in this instance to the action mechanism as representative of a specific type and stage in the development of pianoforte construction. Also, the present circumstances of restoration have made possible the documentation of some details and measurements with greater accuracy. Discrepancies in case size from one end of the instrument to the other, for instance, are noted, and micrometer measurements of string diameters are listed in Table 2.

THE ACTION (Figs.1,2)

The internal action mechanism of the instrument is in two sections which may each be lifted out in its entirety, the larger section comprising 56 notes, F¹ to c³, and the smaller section comprising 17 treble notes, c^{#3} to f⁴. Each section incorporates the relevant keys with their shafts, escapements, underhammers, and hammers. This method of construction facilitates inspection of the mechanism which is essentially that of the English Square Pianoforte Action patented by Broadwood in 1815, as illustrated by Closson (1974:133). Broadwood's earlier simple square pianoforte action incorporating a double-headed jack activating underdampers and hammers was without repetition action (ibid.131). The present instrument has a repetition device in which escapement is effected by a "hopper" (short for "grasshopper"), first patented by John Geib in 1786 (Harding 1978:56), which has a built-in regulating screw (Fig.1). An underhammer lies in reverse direction beneath the hammer proper, pushing up the hammer shaft when the mechanism is activated (Fig.1). The two removable sections fit back into the pianoforte case in front of the vertical rods of the overdampers, which are activated with the mechanism when the key is depressed.

Table 1. Details of square pianoforte by John Broadwood and Sons.

| Part | Details |
|---------------------------------|---|
| Case | Mahogany, unornamented, rosewood nameboard. Fretwork panels either side of nameboard label, green cloth behind. Depth of case without lid, bass end, 27.8 cm, treble end, 28.2 cm. Length at spine, 171.4 cm, at front, 171.5 cm, total length at bottom of case moulding, 173.8 cm. Breadth, back edge to front edge, 68.2 cm. Case thickness, back frame, 3.5 cm, floor, 8.6 cm. Lid, main section, length, 174.8 cm, breadth, bass end, 50.7 cm, treble end, 50.9 cm, depth, 1.2 cm, joined with 6 brass hinges to front section, breadth, 19.6 cm. Keyboard flap, length, 103.6 cm, breadth, 21.7 cm. |
| Legs | 4, curved-surfaced, tapering, circular banding top and bottom. Height from bottom of castor, 54 cm, from top of castor, 45.8 cm. 1 pedal leg of similar design. |
| Keyboard | 6-octave compass, F ₁ to f ⁴ . Key surfaces and edges in good condition. Wood moulding on key fronts. Key-to-key length, flush with sides of nameboard, 101 cm. |
| Nameboard label | John Broadwood & Sons, Manufacturers to (Her) Majesty, Great Pulteney Street, Golden Square, London. White oblong inset, possibly varnished parchment. Black Gothic-type lettering. |
| Hitchpin plate | Iron, black, perforated over surface with 15 large holes of even size. Joins treble end of wrestplank at rear. Coarse woodwork decoration in rear triangular space between plate and case sides. |
| Braces, struts, suspension bars | 1 only flat-sided iron brace, black, extending from outer curve of hitchpin plate to wrestplank between treble notes c ³ and c ^{#3} . Length 37.5 cm, depth, 3.5 cm, width 1.2 cm. |
| Wrestplank | Light-coloured oak wood, maple veneer. |
| Soundboard | Light-coloured spruce wood, grain running diagonally from rear of keyboard towards hitchpin plate. Thickness, 6 mm. Extends from hitchpin plate over surface interior to treble note c ^{#3} . |
| Bridge | Light-coloured wood with brown fleck. Stepped at note 56 before top 17 treble notes. |
| Stringing | Iron, decreasing in thickness from bass to treble, 11 single in bass close wound with copper wire, remainder bichord, plain wire.* |
| Dampers | 54 upright overdampers up to a ^{#2} , red felt or material centre core and base, white felt surround. 19 treble strings undamped. |
| Hammers | Small heads, some variation in size, more apparent in top treble. Centre wood core covered 1 layer leather, 1 layer of skin or leather, outer layer of felt. |

| Part | Details |
|-----------------------------|---|
| Manufacturer's marks & nos. | 53543 ink handwritten lefthand corner of wrestplank, initials "T.G." handwritten below. Wood key shaft of note 56, name "D. Scott" incised on top, 53543 handwritten in pencil on side. Key nos. 1-73 incised from bass to treble on top surfaces of wood key shafts. Key no.1 has handwritten pencil dates on side of shaft, 6/5/43, 14/6/41, also handwritten capital D on top surface. (Note is F). Manufacturer's name on hardware: Leg castors, "Cope's Patent", lid hinges, "Cope's". |

* Micrometer measurements of overall and core diameters of the strings are given in Table 2.

Table 2. Micrometer measurements of string diameters, square pianoforte by Broadwood.

| | String No(s.) | Overall mm | Core mm |
|-------------------|---------------|------------|---------|
| Single (overspun) | 1 | 2.5 | 1.1 |
| | 2 | 2.35 | 1.1 |
| | 3 | 2.225 | 1.1 |
| | 4 | 2.125 | 1.1 |
| | 5 | 2.15 | 1.1 |
| | 6 | 2.015 | 1.1 |
| | 7 | 2.05 | 1.1 |
| | 8 | 1.6 | .925 |
| | 9 | 1.55 | .925 |
| | 10 | 1.4 | .925 |
| | 11 | 1.37 | .925 |
| Bichord | 12 | 1.05 | |
| | 13 | 1.05 | |
| | 14 | .975 | |
| | 15 | .975 | |
| | 16 | .975 | |
| | 17 | .975 | |
| | 18 | .925 | |
| | 19 | .925 | |
| | 20 | .925 | |
| | 21 | .9 | |
| | 22 | .9 | |
| | 23 | .9 | |
| | 24 | .9 | |
| | 25 - 29 | .85 | |
| | 30 | .825 | |
| | 31 | .825 | |
| | 32 | .825 | |
| | 33 | .8 | |
| | 34 | .8 | |
| | 35 | .8 | |
| 36 | .8 | | |
| 37 - 43 | .775 | | |
| 44 - 51 | .7 | | |
| 52 - 59 | .7 | | |
| 60 - 73 | .675 | | |

DATE OF THE INSTRUMENT

The number 53543 handwritten in the lefthand area of the wrestplank, and also on the side of key shaft 56, is assumed to be the serial number. Taylor (1981:38) lists under Broadwood squares the following serial numbers and their starting dates: 52087 — 1840; 58000 — 1845. From this premise the instrument may be broadly dated between 1840 and 1845. Cross reference with another source which gives 55701 as the starting number for Broadwood squares in 1843 (Pierce 1965:40) reduces this dating from a 5- to 3-year span (1840-1843). The earliest of two handwritten pencil dates (which may be tuning dates) on key shaft 1, however, is 14/6/41, thus narrowing the date of manufacture to between 1840 to 1841.

Due to obscuration of the lettering, it is unclear whether that part of the fallboard label acknowledging royal patronage reads "Manufacturers to 'His' or to 'Her' Majesty." If the latter, the date of manufacture would be after Queen Victoria's accession in 1837, and this accords with the above dating. The solid metal hitchpin plate was an invention of Broadwood's as early as 1821 (Harding 1978:200). Its combination in the present instrument with a solid metal brace and the confident placing of that brace as a link between plate and wrestplank suggests an established usage which may well have extended into the 1840s.

THE NEW ZEALAND HISTORIC BACKGROUND

(Abbreviations used below are: OCMar = Old Colonists' Museum Accession Register; OCMc = Old Colonists' Museum correspondence; AIMar = Auckland Institute and Museum Accession Register; APL = Auckland Public Library.

The pianoforte was accessioned by the Old Colonists' Museum, Auckland, on June 16, 1937 (OCMar 1934-1964:1420, APL). Details noted at that time were: "Brought to New Zealand by Miss Christopher, who married Samuel Clarke, son of George Clarke, Protector of Aborigines. Philip Armstrong, donor of the piano, is the great-great-grandson of George Clarke". The marriage of Samuel Clarke to Mary Christopher is recorded in *The New-Zealander* 4 July 1857,(p.3,col.1).

On the day of its arrival at the Old Colonists' Museum (29/4/37), the Director, John Barr, wrote to Philip Armstrong requesting more information on the instrument, which he stated had been in New Zealand "for over 100 years" (OCMc,APL). This, however, would make the instrument pre-1837, beyond the concluded date of manufacture as set out above. No record of a reply, apart from the details noted above, has been located. The pianoforte was presented to the Auckland Museum by the Auckland City Council with other specimens from the Old Colonists' Museum in 1965 (AIMar 1958-1965, 78/65).

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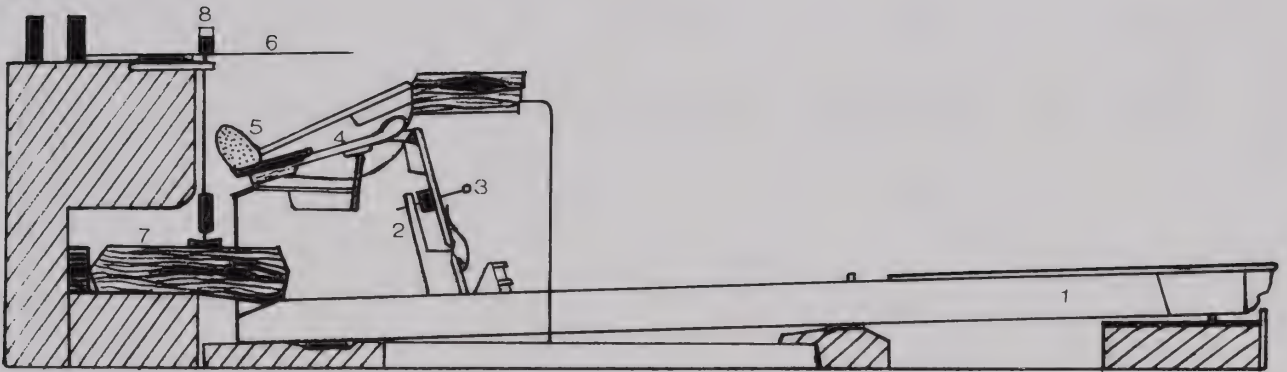


Fig. 1. Sketch of English square pianoforte action, Broadwood, 1815. (After Closson 1974:133).

1. Key. 2. Escapement ("hopper"). 3. Regulating screw. 4. Underhammer. 5. Hammer. 6. String. 7. Damper crank. 8. Damper.

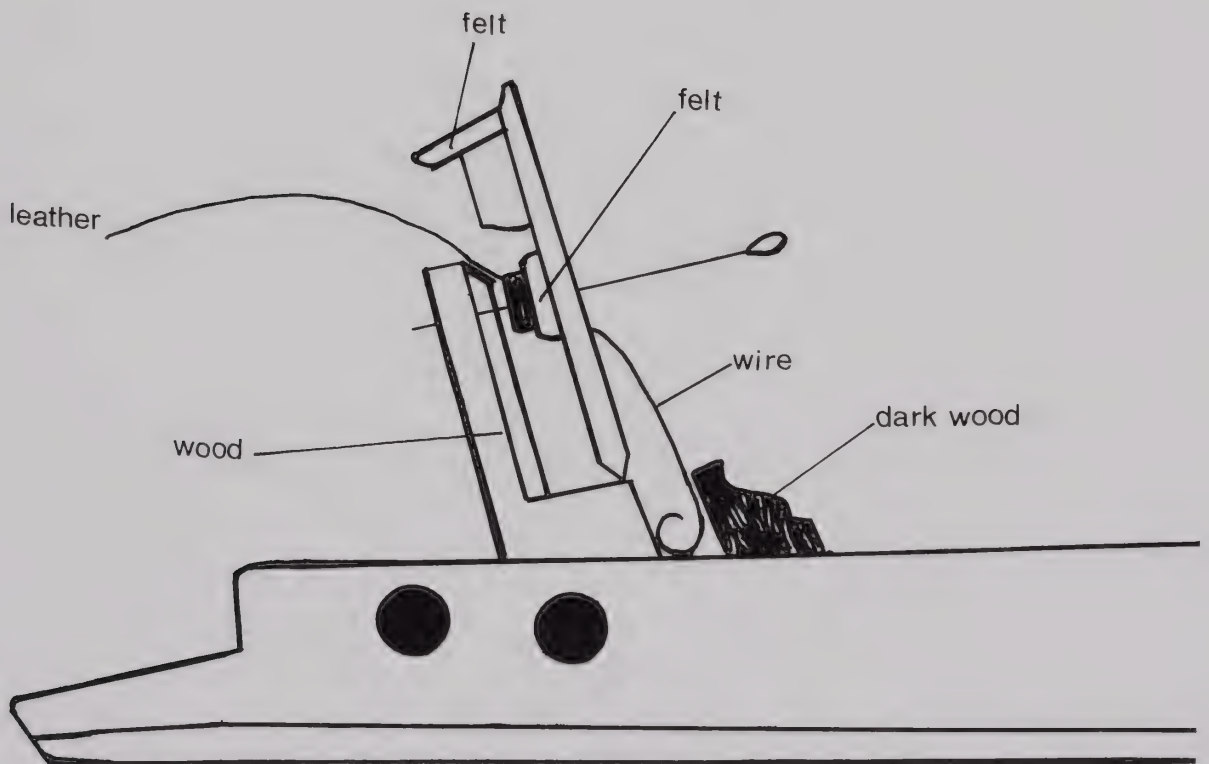


Fig. 2. Sketch (actual size) of key shaft 37 (f¹) with hopper device, square pianoforte by Broadwood, Auckland Institute and Museum.

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